IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ALACRITECH, INC., Plaintiff, v. CENTURY LINK COMMUNICATIONS LLC, ET AL., Defendants, INTEL CORPORATION, ET AL., Intervenors.	Case No. 2:16-cv-00693-RWS-RSP (Lead Case)

<u>MEMORANDUM OPINION AND ORDER ON CLAIM CONSTRUCTION</u>

Before the Court is the opening claim construction brief of Alacritech, Inc. (Plaintiff) (Dkt. No. 181, filed on April 4, 2017),[1] the response of Tier 3, Inc., Savvis Communications Corp., CenturyLink Communications LLC, Dell Inc., Wistron Corp., Wiwynn Corp., SMS Infocomm Corp., Cavium, Inc., and Intel Corporation (collectively, "Defendants") (Dkt. No. 303, filed under seal on July 10, 2017), and the reply of Plaintiff (Dkt. No. 307, filed under seal on July 14, 2017). The Court held a hearing on the issues of claim construction and claim definiteness on August 7, 2017. Having considered the arguments and evidence presented by the parties at the hearing and in their briefing, the Court issues this Order.

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[1] Citations to the parties' filings are to the filing's number in the docket (Dkt. No.) and pin cites are to the page numbers assigned through ECF.

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I.   BACKGROUND

Plaintiff alleges infringement of eight U.S. Patents: No. 7,124,205 (the '205 Patent), No.

7,237,036 (the '036 Patent), No. 7,337,241 (the '241 Patent), No. 7,673,072 (the '072 Patent), No.

7,945,699 (the '699 Patent), No. 8,131,880 (the '880 Patent), No. 8,805,948[2] (the '948 Patent),

and No. 9,055,104 (the '104 patent) (collectively, the "Asserted Patents"). The '205, '036, '241,

'072, '699, '880, and '948 Patents are related through separate chains of continuation and contin-

uation-in-part applications that ultimately converge on a provisional application filed on Oct. 14,

1997, U.S. Provisional Patent Application 60/061,809 (the '809 Provisional). The '104 Patent

claims priority back to a provisional application filed on April 22, 2002.

The Asserted Patents each pertain generally to technology for accelerating computer net-

working. The '205, '036, '241, '072, '699, and '880 Patents are generally directed to network-

accelerating technology that offloads some of the network-layer processing from the computer

processor to an interface device. The '104 Patent is generally directed to network-accelerating

technology that reduces delays that result from waiting on data-receipt acknowledgments.

The abstracts and exemplary claims of the Asserted Patents provide as follows:

The abstract of the '205 Patent provides:

> A network interface device connected to a host provides hardware and processing
> mechanisms for accelerating data transfers between the host and a network. Some
> data transfers are processed using a dedicated fast-path whereby the protocol stack
> of the host performs no network layer or transport layer processing. Other data
> transfers are, however, handled in a slow-path by the host protocol stack. In one
> embodiment, the host protocol stack has an ISCSI layer, but a response to a solicited
> ISCSI read request command is nevertheless processed by the network interface
> device in fast-path. In another embodiment, an initial portion of a response to a
> solicited command is handled using the dedicated fast-path and then after an error

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[2] The parties do not present the Court with any claim-construction disputes from the '948 Patent.

condidtion [sic] occurs a subsequent portion of the response is handled using the . . . slow-path. The interface device uses a command status message to communicate status to the host.

The abstract of the '036 Patent provides:

A system for protocol processing in a computer network has an intelligent network interface card (INIC) or communication processing device (CPD) associated with a host computer. The INIC provides a fast-path that avoids protocol processing for most large multi-packet messages, greatly accelerating data communication. The INIC also assists the host for those message packets that are chosen for processing by host software layers. A communication control block for a message is defined that allows DMA controllers of the INIC to move data, free of headers, directly to or from a destination or source in the host. The context is stored in the INIC as a communication control block (CCB) that can be passed back to the host for message processing by the host. The INIC contains specialized hardware circuits that are much faster at their specific tasks than a general purpose CPU. A preferred embodiment includes a trio of pipelined processors with separate processors devoted to transmit, receive and management processing, with full duplex communication for four fast Ethernet nodes.

The abstract of the '241 Patent provides:

A system for protocol processing in a computer network has an intelligent network interface card (INIC) or communication processing device (CPD) associated with a host computer. The INIC provides a fast-path that avoids protocol processing for most large multi-packet messages, greatly accelerating data communication. The INIC also assists the host for those message packets that are chosen for processing by host software layers. A communication control block for a message is defined that allows DMA controllers of the INIC to move data, free of headers, directly to or from a destination or source in the host. The context is stored in the INIC as a communication control block (CCB) that can be passed back to the host for message processing by the host. The INIC contains specialized hardware circuits that are much faster at their specific tasks than a general purpose CPU. A preferred embodiment includes a trio of pipelined processors with separate processors devoted to transmit, receive and management processing, with full duplex communication for four fast Ethernet nodes.

The abstract of the '072 Patent provides:

A system for protocol processing in a computer network has an intelligent network interface card (INIC) or communication processing device (CPD) associated with a host computer. The INIC provides a fast-path that avoids protocol processing for most large multi-packet messages, greatly accelerating data communication. The INIC also assists the host for those message packets that are chosen for processing by host software layers. A communication control block for a message is defined that allows DMA controllers of the INIC to move data, free of headers, directly to or from a destination or source in the host. The context is stored in the INIC as a communication control block (CCB) that can be passed back to the host for message processing by the host. The INIC contains specialized hardware circuits that are much faster at their specific tasks than a general purpose CPU. A preferred embodiment includes a trio of pipelined processors with separate processors devoted to transmit, receive and management processing, with full duplex communication for four fast Ethernet nodes.

The abstract of the '699 Patent provides:

A Network Interface device (NI device) coupled to a host computer receives a multi-packet message from a network (for example, the Internet) and DMAs the data portions of the various packets directly into a destination in application memory on the host computer. The address of the destination is determined by supplying a first part of the first packet to an application program such that the application program returns the address of the destination. The address is supplied by the host computer to the NI device so that the NI device can DMA the data portions of the various packets directly into the destination. In some embodiments the NI device is an expansion card added to the host computer, whereas in other embodiments the NI device is a part of the host computer.

The abstract of the '880 Patent provides:

An intelligent network interface card (INIC) or communication processing device (CPD) works with a host computer for data communication. The device provides a fast-path that avoids protocol processing for most messages, greatly accelerating data transfer and offloading time-intensive processing tasks from the host CPU. The host retains a fallback processing capability for messages that do not fit fast-path criteria, with the device providing assistance such as validation even for slow-path messages, and messages being selected for either fast-path or slow-path processing. A context for a connection is defined that allows the device to move data, free of headers, directly to or from a destination or source in the host. The context can be passed back to the host for message processing by the host. The device contains

specialized hardware circuits that are much faster at their specific tasks than a general purpose CPU. A preferred embodiment includes a trio of pipelined processors devoted to transmit, receive and utility processing, providing full duplex communication for four Fast Ethernet nodes.

The abstract of the '948 Patent provides:

A system for protocol processing in a computer network has an intelligent network interface card (INIC) or communication processing device (CPD) associated with a host computer. The INIC or CPD provides a fast-path that avoids host protocol processing for most large multipacket messages, greatly accelerating data communication. The INIC or CPD also assists the host for those message packets that are chosen for processing by host software layers. A communication control block (CCB) for a message is defined that allows DMA controllers of the INIC to move data, free of headers, directly to or from a destination or source in the host. The CCB can be passed back to the host for message processing by the host. The INIC or CPD contains hardware circuits configured for protocol processing that can perform that specific task faster than the host CPU. One embodiment includes a processor providing transmit, receive and management processing, with full duplex communication for four fast Ethernet nodes.

The abstract of the '104 Patent provides:

A transmit offload engine (TOE) such as an intelligent network interface device (INIC), video controller or host bus adapter (HBA) that can communicate data over transport protocols such as Transport Control Protocol (TCP) for a host. Such a device can send and receive data for the host to and from a remote host, over a TCP connection maintained by the device. For sending data, the device can indicate to the host that data has been transmitted from the device to a network, prior to receiving, by the device from the network, an acknowledgement (ACK) for all the data, accelerating data transmission. The greatest sequence number for which all previous bytes have been ACKed can be provided with a response to a subsequent command, with the host maintaining a table of ACK values to complete commands when appropriate.

Claim 1 of the '205 Patent, an exemplary apparatus claim, recites:

> 1. An apparatus comprising:
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>> a host computer having a protocol stack and a destination memory, the protocol stack including a session layer portion,

the session layer portion being for processing a session layer protocol; and

a network interface device coupled to the host computer, the network interface device receiving from outside the apparatus a response to a solicited read command, the solicited read command being of the session layer protocol, performing fast-path processing on the response such that a data portion of the response is placed into the destination memory without the protocol stack of the host computer performing any network layer processing or any transport layer processing on the response.

Claim 1 of the '072 Patent, an exemplary method claim, recites:

1. A method comprising:

establishing, at a host computer, a transport layer connection, including creating a context that includes protocol header information for the connection;

transferring the protocol header information to an interface device;

transferring data from the network host to the interface device, after transferring the protocol header information to the interface device;

dividing, by the interface device, the data into segments;

creating headers for the segments, by the interface device, from a template header containing the protocol header information; and

prepending the headers to the segments to form transmit packets.

Claim 1 of the '104 Patent, an exemplary method claim, recites:

1. A method for communication involving a computer, a network, and a network interface device of the computer, the network interface device being coupled to the network, the method comprising:

receiving, by the network interface device from the computer, a command to transmit application data from the computer to the network;

sending, by the network interface device to the network, data corresponding to the command, including prepending a transport layer header to at least some of the data;

sending, by the network interface device to the computer, a response to the command indicating that the data has been sent from the network interface device to the network, prior to receiving, by the network interface device from the network, an acknowledgement (ACK) that all the data corresponding to the command has been received; and

maintaining, by the network interface device, a Transport Control Protocol (TCP) connection that the command, the data and the ACK correspond to.

II. LEGAL PRINCIPLES

A. Claim Construction

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *Id.* at 1313; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. The general rule—subject to certain specific exceptions discussed *infra*—is that each claim term is construed according to its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003); *Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014) ("There is a heavy presumption that claim terms

carry their accustomed meaning in the relevant community at the relevant time.") (vacated on other grounds).

"The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). "[I]n all aspects of claim construction, 'the name of the game is the claim.'" *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)). First, a term's context in the asserted claim can be instructive. *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also aid in determining the claim's meaning, because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). But, "'[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.'" *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. "[I]t is improper to read

limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history is another tool to supply the proper context for claim construction because, like the specification, the prosecution history provides evidence of how the U.S. Patent and Trademark Office (PTO) and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1318; *see also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be "unhelpful as an interpretive resource").

Although extrinsic evidence can also be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are not helpful to a court. *Id.* Extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.* The Supreme Court recently explained the role of extrinsic evidence in claim construction:

In some cases, however, the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period. *See, e.g.*, *Seymour v. Osborne*, 11 Wall. 516, 546 (1871) (a patent may be "so interspersed with technical terms and terms of art that the testimony of scientific witnesses is indispensable to a correct understanding of its meaning"). In cases where those subsidiary facts are in dispute, courts will need to make subsidiary factual findings about that extrinsic evidence. These are the "evidentiary underpinnings" of claim construction that we discussed in *Markman*, and this subsidiary factfinding must be reviewed for clear error on appeal.

Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 841 (2015).

B.   Departing from the Ordinary Meaning of a Claim Term

There are "only two exceptions to [the] general rule" that claim terms are construed according to their plain and ordinary meaning: "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution."[3] *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal."). The standards for finding lexicography or disavowal are "exacting." *GE Lighting Solutions*, 750 F.3d at 1309.

To act as his own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term," and "clearly express an intent to define the term." *Id.* (quoting *Thorner*, 669

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[3] Some cases have characterized other principles of claim construction as "exceptions" to the general rule, such as the statutory requirement that a means-plus-function term is construed to cover the corresponding structure disclosed in the specification. *See, e.g.*, *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1367 (Fed. Cir. 2002).

F.3d at 1365); *see also Renishaw*, 158 F.3d at 1249. The patentee's lexicography must appear "with reasonable clarity, deliberateness, and precision." *Renishaw*, 158 F.3d at 1249.

To disavow or disclaim the full scope of a claim term, the patentee's statements in the specification or prosecution history must amount to a "clear and unmistakable" surrender. *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 ("The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

C.   Functional Claiming and 35 U.S.C. § 112, ¶ 6 (pre-AIA) / § 112(f) (AIA)[4]

A patent claim may be expressed using functional language. *See* 35 U.S.C. § 112, ¶ 6; *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). Section 112, Paragraph 6, provides that a structure may be claimed as a "means . . . for performing a specified function" and that an act may be claimed as a "step for performing a specified function." *Masco Corp. v. United States*, 303 F.3d 1316, 1326 (Fed. Cir. 2002).

But § 112, ¶ 6 does not apply to all functional claim language. There is a rebuttable presumption that § 112, ¶ 6 applies when the claim language includes "means" or "step for" terms, and that it does not apply in the absence of those terms. *Masco Corp.*, 303 F.3d at 1326; *Williamson*, 792 F.3d at 1348. The presumption stands or falls according to whether one of ordinary skill

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[4] The Court refers to the pre-AIA version of § 112 but understands that there is no substantial difference between functional claiming under the pre-AIA version and under the AIA version of the statute.

in the art would understand the claim with the functional language, in the context of the entire specification, to denote sufficiently definite structure or acts for performing the function. *See Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1372 (Fed. Cir. 2015) (§ 112, ¶ 6 does not apply when "the claim language, read in light of the specification, recites sufficiently definite structure" (quotation marks omitted) (citing *Williamson*, 792 F.3d at 1349; *Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1099 (Fed. Cir. 2014))); *Williamson*, 792 F.3d at 1349 (§ 112, ¶ 6 does not apply when "the words of the claim are understood by persons of ordinary skill in the art to have sufficiently definite meaning as the name for structure"); *Masco Corp.*, 303 F.3d at 1326 (§ 112, ¶ 6 does not apply when the claim includes an "act" corresponding to "how the function is performed"); *Personalized Media Communications, L.L.C. v. International Trade Commission*, 161 F.3d 696, 704 (Fed. Cir. 1998) (§ 112, ¶ 6 does not apply when the claim includes "sufficient structure, material, or acts within the claim itself to perform entirely the recited function . . . even if the claim uses the term 'means.'" (quotation marks and citation omitted)).

When it applies, § 112, ¶ 6 limits the scope of the functional term "to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof." *Williamson*, 792 F.3d at 1347. Construing a means-plus-function limitation involves multiple steps. "The first step . . . is a determination of the function of the means-plus-function limitation." *Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1311 (Fed. Cir. 2001). "[T]he next step is to determine the corresponding structure disclosed in the specification and equivalents thereof." *Id.* A "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Id.* The focus of the "corresponding structure" inquiry is not simply whether a structure is capable of performing the recited function, but rather whether the

corresponding structure is "clearly linked or associated with the [recited] function." *Id.* The corresponding structure "must include all structure that actually performs the recited function." *Default Proof Credit Card Sys. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). However, § 112 does not permit "incorporation of structure from the written description beyond that necessary to perform the claimed function." *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

For § 112, ¶ 6 limitations implemented by a programmed general purpose computer or microprocessor, the corresponding structure described in the patent specification must include an algorithm for performing the function. *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The corresponding structure is not a general purpose computer but rather the special purpose computer programmed to perform the disclosed algorithm. *Aristocrat Techs. Austl. Pty Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

D.   Definiteness Under 35 U.S.C. § 112, ¶ 2 (pre-AIA) / § 112(b) (AIA)[5]

Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112, ¶ 2. A claim, when viewed in light of the intrinsic evidence, must "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). If it does not, the claim fails § 112, ¶ 2 and is therefore invalid as indefinite. *Id.* at 2124. Whether a claim is indefinite is determined from the perspective of one of ordinary skill in the art as of the time the application for the patent was filed. *Id.* at 2130. As it is a challenge to the validity of a patent, the failure of any claim in suit to comply with § 112 must be shown by clear and convincing evidence. *Id.* at 2130

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[5] The Court refers to the pre-AIA version of § 112 but understands there is no substantial difference between definiteness under the pre-AIA version and under the AIA version of the statute.

n.10. "[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012).

When a term of degree is used in a claim, "the court must determine whether the patent provides some standard for measuring that degree." *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015) (quotation marks omitted). Likewise, when a subjective term is used in a claim, "the court must determine whether the patent's specification supplies some standard for measuring the scope of the [term]." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005). The standard "must provide objective boundaries for those of skill in the art." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014).

In the context of a claim governed by 35 U.S.C. § 112, ¶ 6, the claim is invalid as indefinite if the claim fails to disclose adequate corresponding structure to perform the claimed functions. *Williamson*, 792 F.3d at 1351–52. The disclosure is inadequate when one of ordinary skill in the art "would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim." *Id.* at 1352.

III. CONSTRUCTION OF DISPUTED TERMS

A. "fast-path processing," "slow-path processing," "substantially no network layer or transport layer processing," and "significant network layer or significant transport layer processing"

Disputed Term[6]	Plaintiff's Proposed Construction	Defendants' Proposed Construction
fast-path processing • '205 Patent Claims 1, 31	the protocol stack of the host computer performs little or no	a mode of operation in which the network interface device performs all physical layer,

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[6] For all term charts in this order, the claims in which the term is found are listed with the term but: (1) only the highest-level claim in each dependency chain is listed, and (2) only asserted claims identified in the parties' Joint P.R. 4-5(d) Claim Construction Chart (Dkt. No. 311) are listed.

Disputed Term[6]	Plaintiff's Proposed Construction	Defendants' Proposed Construction
	network layer or transport layer processing	MAC layer, IP layer, and TCP layer processing
slow-path processing • '205 Patent Claim 31	no construction necessary	a mode of operation in which the host performs at least some of the physical layer, MAC layer, IP
substantially no network layer or transport layer processing • '205 Patent Claim 22	no construction necessary	indefinite
"significant network layer or significant transport layer processing" • '205 Patent Claim 31	no construction necessary	indefinite

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: "Fast-path processing" is defined in the '205 Patent, "handling the connection such that protocol stack [] of the host performs little or no network layer or transport layer processing … is called 'fast-path processing.'" Dkt. No. 181 at 7 (quoting '205 Patent 39:39–45). This definition and exemplary embodiments allow that the host may perform some portion of the processing. *Id.* at 8. Surrounding claim language also allows this. Claim 1 recites "without the protocol stack of the host computer performing any network layer processing or any transport layer processing on the response" (allowing host processing on other than the response), Claim 8 recites "without the protocol stack of the host computer doing any network layer processing on the packet and without the protocol stack of the host computer doing any transport layer processing on the packet" (allowing host processing on other than the packet), and Claim 31 recites "the portion

being fast-path processed such that the data is placed into the destination memory on the host computer without the protocol stack of the host computer doing significant network layer or significant transport layer processing" (allowing insignificant host processing in the fast path). *Id.* at 8. And the '809 Provisional, incorporated into the '205 Patent, expressly teaches the host playing a role in the fast-path processing. *Id.* at 8–9 & n.2 (citing '809 Provisional at 7–8, 13; Min Opening Decl. ¶ 65, Dkt. No. 181-12 at 24–25). "Slow-path processing" is simply the alternative to "fast-path processing" and need not be separately construed. *Id.* at 11. And "significant" and "substantially" do not have special meaning, can be understood without construction, and are supported by disclosure of the '205 Patent, including the '809 Provisional. *Id.* at 21–22.

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '205 Patent 1:10, 1:33, 3:48–51, 3:63–4:4, 8:8–60, 11:18–30, 17:6–34, 18:16–37, 39:39–45; '205 Patent File Wrapper Oct. 2, 2001 Application (Pl.'s Ex. I, Dkt. No. 181-9); U.S. Provisional Application No. 60/061,809 (the '809 Provisional) (Pl.'s Ex. U, Dkt. No. 181-21). **Extrinsic evidence**: Lanning Dep.[7] 186:23–187:5, 195:11–196:5, 199:4–15 (Pl.'s Ex. P, Dkt. No. 181-16); Min Opening Decl.[8] ¶¶ 61, 63, 65 (Pl.'s Ex. L, Dkt. No. 181-12); Lanning Opening Decl.[9] ¶¶ 41, 47 (Pl.'s Ex. N, Dkt. No. 181-14); Lanning Rebuttal Decl.[10] ¶¶ 13–15, 20, 28 (Pl.'s Ex. O, Dkt. No. 181-15).

Defendants respond: Neither the '205 Patent or any parent application to the patent describe an embodiment in which the host does "a little" of the fast-path processing. Dkt. No. 303 at 10.

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[7] Dep. of Mark Lanning (Mar. 14, 2017).

[8] Decl. of Paul S. Min in Support of Plaintiff's Claim Construction Brief.

[9] Decl. of Mr. Mark R. Lanning Regarding Claim Construction.

[10] Rebuttal Declaration of Mr. Mark R. Lanning Regarding Claim Construction.

Rather, but for a single unexplained reference to the "host perform[ing] little or no . . . processing," the '205 Patent teaches that fast-path processing is performed entirely exclusive of the host. *Id.* at 10–14 (citing '205 Patent 39:35–45). The disclosures of the '809 Provisional relied upon by Plaintiff disclose either host processing above the network and transport layers, *id.* at 12–13 (citing '809 Provisional at 7–8), or host processing instead of fast-path processing—i.e., slow-path processing, *id.* at 13–14 (citing '809 Provisional at 13). The patent provides no guidance regarding how much processing the host may perform yet still be "little . . . processing." *Id.* at 14. Similarly, the patent provides no guidance regarding how much host processing qualifies as "substantially no . . . processing" or "significant . . . processing." *Id.* at 14–15.

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '205 Patent, at [57] Abstract, 3:44–51, 4:29–33, 9:25–29, 11:25–30, 11:64–12:3, 12:22–24, 14:55–60, 37:15–18, 39:35–45, 40:19–31; '809 Provisional (Defs.' Ex. 1, Dkt. No. 303-1). **Extrinsic evidence**: Min Opening Decl. ¶¶ 63, 65 (Pl.'s Ex. L, Dkt. No. 181-12); Lanning Opening Decl. ¶¶ 41, 42, 45–47 (Defs.' Ex. 5, Dkt. No. 303-5); Lanning Rebuttal Decl. ¶¶ 10–13, 20, 21 (Defs.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: The patentee's definition of "fast-path processing" provided in the '205 Patent governs. Dkt. No. 307 at 8. While there are some exemplary embodiments that expressly require no host processing, others do not have this requirement. *Id.* at 9. And the disclosures of the '809 Provisional establish that: (1) "fast-path processing" includes host processing on the rare occasion that the "fast-path [] receive[s] a header and data that is a complete request, but is also too larger for a header buffer" in the fast-path, *id.* at 9–10, and (2) the host "transport driver performing transport-level processing" may participate in fast-path processing, *id.* at 10 n.6.

Plaintiff cites further **extrinsic evidence** to support its position: Min Opening Decl. ¶¶ 62, 66 (Pl.'s Ex. L, Dkt. No. 181-12); Lanning Rebuttal Decl. ¶ 9 (Pl.'s Ex. O, Dkt. No. 181-15).

Analysis

There are two main issues in dispute. First, whether the host CPU may perform a "little" network layer or transport layer processing in the "fast-path processing." Second, whether it is reasonably certain what it means for the host to perform "little" or "substantially no" or "significant" network layer or transport layer processing. With respect to the first issue, "fast-path processing" is defined in the '205 Patent to include "little" processing by the host. With respect to the second issue, the patent provides examples of host processing in the fast path that are sufficient to reasonably delineate "little" or "substantially no" or "significant" host processing.

The '205 Patent provides a definition of "fast-path processing," which is defined in the alternative to "slow-path processing":

> There is a communication control block 2417 (CCB) on host computer 2407 and a communication control block 2418 (CCB) on network interface device 2408. These two CCBs are associated with the connection of the ISCSI transaction between computer 2401 and ISCSI target 2404. Only one of the two CCBs is "valid" at a given time. If the CCB 2417 of the host computer is valid, then *the protocol stack of the host computer is handling the connection*. This *is called "slow-path processing"* and is described above in this patent document. If, on the other hand, the CCB 2418 is valid, then *network interface device 2408 is handling the connection such that protocol stack 2411 of the host performs little or no network layer or transport layer processing for packets received in association with the connection*. This *is called "fast-path processing"* and is described above in this patent document.

'205 Patent 39:30–45 (emphasis added). This definition comports with use of the terms elsewhere in the patent. For example, the patent provides:

> If, on the other hand, processor 780 finds no such exception condition, then the "fast-path candidate" packet is determined to be an actual "fast-path packet". The

receive state machine 2232 then processes of the packet through TCP. The data portion of the packet in buffer 2114 is then transferred by another DMA controller (not shown in FIG. 21) from buffer 2114 to a host-allocated file cache in storage 35 of host 20. ***<u>In one embodiment</u>***, ***host 20 does no analysis of the TCP and IP headers of a "fast-path packet"***. All analysis of the TCP and IP headers of a "fast-path packet" is done on INIC card 20.

Id. at 37:8–18 (emphasis added). That is, *in one embodiment* all TCP/IP header processing in the fast path is performed by the INIC, not the host. This suggests that not all embodiments of fast-path processing entirely exclude the host. Similarly, Claim 31 provides:

> An apparatus comprising:
>
>> a host computer having a protocol stack and a destination memory; and
>>
>> means, coupled to the host computer, for receiving from outside the apparatus a response to an ISCSI read request command and for ***fast-path processing*** a portion of the response to the ISCSI read request command, the portion including data, the portion being ***fast-path processed*** such that the data is placed into the destination memory on the host computer ***<u>without the protocol stack of the host computer doing significant network layer or significant transport layer processing</u>***, the means also being for receiving a subsequent portion of the response to the ISCSI read request command and for slow-path processing the subsequent portion such that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion.

Id. at 46:12–29 (emphasis added). Again, this does not exclude all transport and network layer processing by the host. This is not inconsistent with exemplary embodiments that state simply that the host does no transport and network layer processing—"little or no" includes "no." Further, recitations in Claim 1 ("performing fast-path processing on the response such that a data portion of the response is placed into the destination memory ***without the protocol stack of the host com-***

***puter performing any network layer processing or any transport layer processing on the re-
sponse***" (emphasis added)) and Claim 8 ("performing fast-path processing on the packet such that

the data is placed into a destination memory ***without the protocol stack of the host computer doing***

any network layer processing on the packet and without the protocol stack of the host computer

doing any transport layer processing on the packet" (emphasis added)) would be rendered super-

fluous if fast-path processing necessarily excluded network-layer and transport-layer processing

by the host computer. But "[c]laims must be interpreted with an eye toward giving effect to all

terms in the claim." *Info-Hold, Inc. v. Muzak LLC,* 783 F.3d 1365, 1373 (Fed. Cir. 2015). Simply,

the patentee defined fast-path processing to allow that the host may do some—little—transport

and network layer processing. The Court declines to adopt a different definition.

In the context of the '205 Patent, the meaning of "little" or "substantially no" or "signifi-

cant" host processing is reasonably certain. Terms of degree are not indefinite if the patent provides

some objective standard for measuring the degree. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783

F.3d 1374, 1378 (Fed. Cir. 2015). As the Supreme Court recently reiterated, "the definiteness re-

quirement must take into account the inherent limitations of language." *Nautilus Inc. v. Biosig*

Instruments, Inc., 134 S. Ct. 2120, 2128 (2014). Thus, terms of degree may appropriately be used

to "avoid[] a strict numerical boundary to the specified parameter." *Ortho-McNeil Pharm., Inc. v.*

Caraco Pharm. Labs., Ltd., 476 F.3d 1321, 1326 (Fed. Cir. 2007) (quoting *Pall Corp. v. Micron*

Separations, Inc., 66 F.3d 1211, 1217 (Fed. Cir. 1995)). The scope of the term of degree may be

understood with reference to the technological context. *Id.* Here, the context is the performance

improvement gained by shifting host processing to the interface. *See, e.g.*, '205 Patent 3:48–51

("The host CPU and protocol stack avoid protocol processing for data transfer over the fast path,

releasing host bus bandwidth from many demands of the network and storage subsystem."); *id.* at

43:32–38 ("Protocol processing speed and efficiency is tremendously accelerated by an intelligent network interface card (INIC) containing specially designed protocol processing hardware, as compared with a general purpose CPU running conventional protocol software, and interrupts to the host CPU are also substantially reduced.").

The Court finds Plaintiff's expert more credible than Defendants' expert on this issue of indefiniteness. In opining that these terms are not indefinite, Plaintiff's expert considered the terms in the above-stated technological context. *See, e.g.*, Min Opening Decl. ¶¶ 61–63, Dkt. No. 181-2 at 21–23. In contrast, Defendants' expert appears to be searching for a numerical boundary and, failing to find one, opines that the terms are indefinite. *See, e.g.*, Lanning Opening ¶¶ 41–48, Dkt. No. 303-5 at 21–23.

Further, the disclosures of host-processing at pages 7 through 8 and 13 of the '809 Provisional, which is incorporated into the '205 Patent, appear to be instances of fast-path processing that provide further technological guidance as to what level of host processing is acceptable in the fast path. The application provides that the host "transport driver" will help route packets through the fast path by communicating—through an existing NT mechanism—"a small amount of data" between the upper layer client and the network interface (INIC) during the fast-path processing to facilitate INIC DMA of the remaining data. '809 Provisional 7–8, Dkt. No. 181-21 at 11–12; Min Opening Decl. ¶ 65, Dkt. No. 181-12 at 24–25. The Court is not persuaded that this processing by the host "transport driver," which involves communication of packet data and memory address with both the INIC and the upper-level client, is not "transport layer processing" because it is "above the transport layer," as Defendants' contend. *See, e.g.*, Lanning Rebuttal Decl. ¶ 20, Dkt. No. 303-6 at 16–18. Likewise, the application provides that in situations in which the size of the incoming request is such that only a single data buffer is used, the fast-path flow for that single

buffer will be identical to the slow-path flow—"***which also*** puts all the data into the header buffer or, if the header is too small, uses a large (2K) host buffer for all the data" and "at most, one data buffer" will be sent to the host for processing. '809 Provisional 13 (emphasis added), Dkt. No. 181-21 at 17; Min Opening Decl. ¶ 65, Dkt. No. 181-12 at 24–25. The Court is not persuaded that this is not fast-path processing, as Defendants' contend. *See, e.g.*, Lanning Rebuttal Decl. ¶ 20, Dkt. No. 303-6 at 16–18. Indeed, the "which also" language in the description of this embodiment suggests that this is not simply slow-path processing, but rather a specific instance of fast-path processing. The Court finds Plaintiff's expert more credible than Defendants' on these disclosures in the '809 Provisional.

Accordingly, the Court determines that Defendants have failed to prove that any claim is rendered indefinite by "substantially no network layer or transport layer processing" or "significant network layer or significant transport layer processing" and construes "fast-path processing" and "slow-path processing" as follows:

- "fast-path processing" means "a mode of operation in which the protocol stack of the host computer performs little or no network layer or transport layer processing";

- "slow-path processing" means "a mode of operation in which the host performs more than a little network layer or transport layer processing."

B. **"a destination memory," "a destination in memory," and "a destination [for the data] in a memory of the computer"**

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
a destination memory - '205 Patent Claims 1, 22, 31 a destination in memory - '241 Patent Claims 1, 22	a single contiguous block or several associated blocks of memory in the computer	the location in host memory where data resides when all MAC layer, network layer, and transport layer processing is complete

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
a destination [for the data] in a memory of the computer • '699 Patent Claims 1, 7, 13		

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: The patents describe that the destination recited in the claims is the place in memory where the information is deposited and may be a single contiguous block of memory or several associated blocks. Dkt. No. 181 at 12 (citing '699 Patent 6:64–7:2). Some claims—but not all—explicitly recite processing limitations related to depositing the information at the memory. These would be rendered superfluous by Defendants' proposed processing limitations. *Id.* at 12–13. And no claim recites all Defendants' proposed processing limitations. *Id.* Exemplary embodiments include destinations that are not on the host computer, contradicting Defendants' proposed "location in host memory" limitation. *Id.* at 13–14. And some claims—but not all—explicitly recite that the destination is on the host computer. *Id.* at 14 (citing '205 Patent 38:67–39:4). Finally, the destination need not be a final destination, as Defendants' proposed "when all . . . processing is complete" limitation demands. *Id.* Rather, the patents expressly refer to "final destination," which implies that a destination is not necessarily final. *Id.*

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '699 Patent 6:64–7:2; '241 Patent fig.4B, 9:66–10:23; '205 Patent 9:1–7, 38:67–39:4. **Extrinsic evidence**: *Random House Webster's Dictionary* (1999), "destination" (Pl.'s Ex. Q, Dkt. No. 181-17); *Webster's New World Dictionary of*

Computer Terms (8th ed. 2000), "destination" (Pl.'s Ex. R, Dkt. No. 181-18); Lanning Opening Decl. ¶¶ 8–11 (Pl.'s Ex. N, Dkt. No. 181-14); Lanning Rebuttal Decl. ¶¶ 83–85 (Pl.'s Ex. O, Dkt. No. 181-15); Min Opening Decl. ¶¶ 16–23 (Pl.'s Ex. L, Dkt. No. 181-12).

Defendants respond: Plaintiff's proposed construction is simply "memory" and gives no effect to "destination." Dkt. No. 303 at 16. The patents distinguish the "destination" in memory from the "initial landing point" in memory, and this distinction is not captured by Plaintiff's proposed construction. *Id.* at 16–17 (citing '699 Patent 2:28–43). The '699 and '241 Patents state that the destination is in host memory and the only reference to the contrary is found only in the '205 Patent (the claims of which expressly require the destination be in host memory) and therefore does not apply to the other patents. *Id.* at 17–18 (citing '699 Patent 6:64–7:2; '241 Patent 14:48–51; '205 Patent 39:2–4). And the patents distinguish the destination from locations in memory used during protocol processing. *Id.* at 18 (citing '241 Patent 35:20–27; '205 Patent 2:66–3:5, 16:53–55; '699 Patent 2:28–43).

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '699 Patent, at [54] Title, 2:28–43, 6:64–7:2; '205 Patent 2:66–3:5, 16:53–55, 39:2–4; '241 Patent 5:18–28, 14:48–51, 35:20–27; '809 Provisional (Defs.' Ex. 1, Dkt. No. 303-1). **Extrinsic evidence**: *Oxford Dictionary of Computing* (4th ed. 1996), "word" (Defs.' Ex. 18, Dkt. No. 303-18); Lanning Rebuttal Decl. ¶ 85 (Defs.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: Under its plain meaning, and as used in the patents, "destination" refers to the place to which something travels or is sent, and is a counterpart to "source." Dkt. No. 307 at 11. This is captured in the language of the claims—the information is expressly placed or sent or transferred to the memory "destination." *Id.* at 12. Thus, the destination is distinct from the

"initial landing point" as the initial landing point is a "source." *Id.* And the statements in the '205 Patent regarding destinations other than in the host are incorporated into the '241 Patent, and the '205 Patent expressly claims such an embodiment—"destination memory that is part of a second host computer." *Id.* at 12 & nn.9, 10.

Plaintiff cites further **intrinsic evidence** to support its position: '699 Patent 5:65–67; '241 Patent 2:15–18.

Analysis

There are three main issues in dispute. First, whether a destination in memory is simply the memory. Second, whether the destination in memory is necessarily in host memory. Third, whether the destination in memory is the location for data after the MAC, network, and transport layer processing is complete. With respect to the first issue, the destination is a specified location in memory. With respect to the second issue, the destination in memory need not be in the host memory. With respect to the third issue, the destination is not necessarily the post-processing destination.

The '205, '241, and '699 Patents each refer to destinations as locations in memory. For example, the '205 Patent describes destinations such as the "location of a file cache [] in storage" and "in semiconductor memory." *See, e.g.*, '205 Patent 37:34–37, 39:4–6, 40:6–11, 40:17–19. The '241 includes similar references to, e.g., "in storage" *See, e.g.*, '241 Patent 10:16–18. And the '699 Patent refers to destinations, e.g., "in memory space," "a single contiguous block of host memory," and "several associated blocks . . . of host memory." *See, e.g.*, '699 Patent 5:25–29, 6:64–7:2. Indeed, the parties approach the limitations as if "destination in memory" means the same as "destination memory." And the plain meaning of "destination" supports that the destination terms here

refer to specific memory rather than just memory in the abstract, as Plaintiff's proposed construction suggests. The Court notes, however that the statements in the '699 Patent regarding contiguous and associated blocks are not definitional. They simply note the destination may be scattered over multiple—associated—locations. *Id.* at 5:65–67 ("In some embodiments, the second destination 110 is actually made up of a plurality of locations having different addresses of different lengths.").

The destination need not be in host memory. The '205 Patent, the disclosure of which is incorporated into the '241 Patent, provides: "[d]estination 2413 may be on the host computer, or on another computer, or on another device, or elsewhere on network 2403." '241 Patent 39:2–3. The claims of the '699 Patent expressly recite that the destination is "in a memory of ***the*** com-puter." The Court understands "the computer" here to be the host, implying that the destination is not necessarily in the host memory. Indeed, Claim 12 of the '205 Patent explicitly provides that "the destination memory is part of a second host computer." '205 Patent 44:57–58.

Finally, the Court is not persuaded that the destination terms necessarily entail the processing Defendants suggest. Even if Defendants' characterization is correct—and every embodiment of a destination is described with reference to data that has undergone Defendants' proposed processing—that alone is not sufficient to limit the claims to that processing. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) ("we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment"); *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012) ("It is likewise not enough that the only embodiments, or all of the embodiments, contain a particular limitation. We do not read limitations from the specification into claims; we do not redefine words. Only the patentee can do that."); *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc) ("The law does not require the impossible.

Hence, it does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention."). And Defendants have not identified any lexicography or disavowal that would limit the broad meaning of destination as they propose. *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("The standards for finding lexicography and disavowal are exacting. To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term, and clearly express an intent to define the term." (quotation marks omitted)). Further, Defendants' proposed processing limitation would render explicit limitations superfluous. For example, the claims of the '699 Patent each recite "transferring the data to the destination, without transferring the network layer headers or the transport layer headers of the plurality of packets to the destination." '699 Patent 7:17–19, 7:50–52, 8:27–29. If "destination" necessarily presupposes the transport-layer and network-layer processing, this limitation would be superfluous. But "[c]laims must be interpreted with an eye toward giving effect to all terms in the claim." *Info-Hold, Inc. v. Muzak LLC,* 783 F.3d 1365, 1373 (Fed. Cir. 2015).

Accordingly, the Court construes the destination terms as follows:

- "a destination memory" means "one or more specified locations in memory that may be a single contiguous block or several associated blocks of memory in a computer";

- "a destination in memory" means "one or more specified locations in memory that may be a single contiguous block or several associated blocks of memory in a computer";

- "a destination [for the data] in a memory of the computer" means "one or more specified locations [for the data] in a memory of the computer and that may be a single contiguous block or several associated blocks of memory in the computer."

C. "context [for communication]," "context," and "status information"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
context [for communication] • '036 Patent Claims 1	data regarding an active connection	indefinite
context • '072 Patent Claims 1, 9, 15	data regarding an active connection	indefinite
status information • '072 Patent Claims 3, 9, 15	no construction necessary	indefinite

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: The plain meaning of "context" refers to the circumstances surrounding an event or situation and in the context of the exemplary embodiment and claims, the "context" refers to information regarding a connection or communication. Dkt. No. 181 at 14-15. For example, the patents provide "the context summariz[es] various features of the connection, such as protocol type and source and destination addresses for each protocol layer." *Id.* at 15 (quoting '036 Patent 7:62–8:2). And the patents describe contexts for different types of connections, such as TCP, TTCP, and SPX. *Id.* Certain claims require "status information" as part of the context, which plainly refers to the status of the connection. *Id.* at 18.

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '036 Patent 7:62–8:2, 10:10–22, 10:35–41, 17:14–22, 37:63–38:10; '072 Patent File Wrapper June 25, 2007 Application; '809 Provisional.

Extrinsic evidence: *Random House Webster's Dictionary* (1999), "context" (Pl.'s Ex. Q, Dkt. No. 181-17); *American Heritage Dictionary* (3d ed. 1994), "context" (Pl.'s Ex. S, Dkt. No. 181-19); Min Opening Decl. ¶ 74 (Pl.'s Ex. L, Dkt. No. 181-12); Min Rebuttal Decl.[11] ¶¶ 39–40 (Pl.'s Ex. M, Dkt. No. 181-13); Lanning Opening Decl. ¶¶ 17–31, 39 (Pl.'s Ex. N, Dkt. No. 181-14).

Defendants respond: The meaning of "context" in the claims is not reasonably certain because "context" is used in the patents and priority documents in a manner inconsistent with its use in the claims. Dkt. No. 303 at 19. "Context" is variably used to refer to a "connection" and information in a Transmission Control Block for TCP connections (TCB). *Id.* at 19–20. In previous litigation, Plaintiff represented "context" as something analogous to TCB and in an interference proceeding involving a related but unasserted patent, inventors referred to "context" as TCB. *Id.* at 20–21. In the '036 and '072 Patents, however, "context" is used to refer to information in a Communication Control Block (CCB), which is a generalization of TCB that is not limited to TCP and includes UDP. *Id.* at 21. Yet the '809 Provisional specifically excludes UDP. *Id.* at 21–22. And Plaintiff's proposed construction covers information "clearly hav[ing] no relation to anything in the patents in suit" and adds nothing to the meaning of claims that already recite "packets." *Id.* at 22. Ultimately, one of ordinary skill in the art is not able to determine if particular information is "context."

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '072 Patent 9:49–52, 24:15–18, 30:60–64;

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[11] Rebuttal Declaration of Paul S. Min in Support of Plaintiff's Claim Construction Brief.

'036 Patent 9:50–53, 24:38–40, 31:14–17; '809 Provisional (Defs.' Ex. 1, Dkt. No. 303-1); Blight-man Dep.[12] 67:21–68:2 (Defs,' Ex. 8, Dkt. No. 303-8); Higgen Dep.[13] 122:11–123:7 (Defs.' Ex. 8, Dkt. No. 303-8). **Extrinsic evidence**: Alacritech Initial Proposal Document[14] (Defs.' Ex. 3, Dkt. No. 303-3); Alacritech, *Fast-path TCP_TASK_OFFLOAD Porting Effort Summary*[15] (Defs.' Ex. 7, Dkt. No. 303-7); Min Dep.[16] 170:19–174:6, 175:2–176:6 (Defs.' Ex. 4, Dkt. No. 303-4).

Plaintiff replies: When considered in the context of the surrounding claim language and description of the '036 and '072 Patents, the meaning of "context" is reasonably certain. Dkt. No. 307 at 13–16. That "context" may be satisfied by various and diverse pieces of information goes to the term's breadth, not its definiteness. *Id.* at 14. Whether a term is used differently in a priority document than in the issued patents is irrelevant to the indefiniteness analysis. *Id.* And Defendants' cited priority documents refer to protocols other than TCP or use "context" to describe the state of a TCP connection and thus are consistent with Plaintiff's proposed construction. *Id.* at 15.

Plaintiff cites further intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '036 Patent 9:50–53, 17:14–25, 39:33–40, 39:45–48. **Extrinsic evidence**: Lanning Dep. 74:20–76:4, 76:7–16 (Pl.'s Ex. P, Dkt. No. 181-16); Min Dep. 141:12–16, 152:18–153:4, 159:13–161:3, 162:4–13 (Pl.'s Reply Ex. C, Dkt. No. 307-4).

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[12] Testimony provided on Feb. 11, 2011 in Patent Interference No. 105,775.

[13] Testimony provided on Feb. 9, 2011 in Patent Interference No. 105,775.

[14] The document, as provided to the Court, is not titled.

[15] Dkt. No. 38-3 in *Alacritech, Inc. v. Microsoft Corp.*, No. 3:04-cv-3284-JSW (N.D. Cal.).

[16] Dep. of Paul Min (Mar. 21, 2017).

Analysis

The issue here is whether the meaning of "context" is reasonably certain in the context of the '036 and '072 Patents. It is.

To begin, Defendants offered no argument in their brief supporting their contention that "status information" renders claims indefinite. A naked assertion of indefiniteness cannot satisfy the burden of proving a patent claim invalid.

The Court is not persuaded the statements in the patents, and extrinsic to the patents, regarding TCB as a context or CCB as context or UDP embodiments of the invention render any claims indefinite. Rather than equating, for example, TCB and context, the patents allow that context may come in the form of TCB, or CCB, or other forms. As explained in the patents:

> A connection context 50 has been created, as will be explained below, ***the context summarizing various features of the connection, such as protocol type and source and destination addresses for each protocol layer***. The ***context may be*** passed between an interface for the session layer 42 and the CPD 30, as shown by arrows 52 and 54, and ***stored as a communication control block*** (CCB) at either CPD 30 or storage 35.

'036 Patent 7:62–8:2. That is, the context relates to features of the connection. It ***may be***, therefore is ***not necessarily***, stored as a CCB. The patents also provide that "[h]ost stack 44 may use this packet to create a connection context for the message, including finding and reserving a destination for data from the message associated with the packet, ***the context taking the form of a CCB***." *Id.* at 10:19–22. That is, the context may take the form of a CCB. This does not preclude context taking the form of TCB. Indeed, the patent provides for a context in the form of a TCB. *Id.* at 31:7–12 ("The IP source address of the IP header, the IP destination address of the IP header, the TCP source address of the TCP header, and the TCP destination address of the TCP header together uniquely define a single connection context (TCB) with which the packet is associated.").

That said, the Court is sensitive to the potential overbreadth of Plaintiff's proposed construction and prefers the language provided in the patents: "the context summarizing various features of the connection." *Id*. at 7:62–8:2.

Accordingly, the Court determines Defendants have failed to prove that any claim is indefinite by reason of "context" or "status information," and "status information" need not be construed. The Court construes "context" as follows:

- "context" means "information summarizing various features of the connection."

D.   "prepend," "prepended," and "prepending"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
prepend • '036 Patent Claim 4	no construction necessary	add to the front
prepended • '241 Patent Claims 7, 9	no construction necessary	added to the front
prepending • '241 Patent Claims 9, 17 • '072 Patent Claims 1, 9, 15 • '104 Patent Claims 1, 22	no construction necessary	adding to the front

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: "Prepend" and its variants are used in the claims according to the plain and well-understood meaning of the term and thus the terms do not need to be construed. Dkt. No. 181 at 20–21.

In addition to the claims themselves, Plaintiff cites the following **intrinsic evidence** to support its position: '036 Patent 14:5–12.

Defendants respond: The '036, '241, and '072 Patents expressly state that "prepends" means "adds to the front." Dkt. No. 303 at 24 (quoting '036 Patent 14:7–11; '241 Patent 13:63–67; '072 Patent 13:68–14:4). And, in the context of combining headers and data, prepending headers to data, as is claimed, is distinct from appending data to headers and from piecemeal assembly of header and data information spread over time. *Id.* at 24–25.

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '036 Patent 14:7–11; '241 Patent 13:63–67; '072 Patent 13:68–14:4, 32:52–56; U.S. Patent No. 6,247,060[17] 60:35–40. **Extrinsic evidence**: *Newton's Telecom Dictionary*, "prepend" (Defs.' Ex. 17, Dkt. No. 303-17).

Plaintiff replies: Prepended header information in a data set simply is positioned in front of other data (i.e., not behind or in the middle of other data) and need not be added only after the other data is added. Dkt. No. 307 at 16–17. The patents describe data sets according to the order of information in the set, not the order in which the information is added to the set. *Id.* at 17. And if the descriptions can be interpreted to indicate a temporal ordering, the patents disclose placing headers at the front before and after other data has been added to the set. *Id.* "Prepending" covers both temporal orderings. *Id.*

Plaintiff cites further intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '036 Patent 76:66–77:4; '241 Patent 76:61–66, '072 Patent 32:52–56, 75:67–76:6; U.S.

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[17] Each of the '036, '241, and '072 Patent claim priority through U.S. Patent No. 6,247,060. '036 Patent, at [63] Related U.S. Application Data; '036 Patent, at [63] Related U.S. Application Data; '241 Patent 1:22–27 (listing Application No. 09/439,603).

Patent No. 6,247,060 60:35–40. **Extrinsic evidence**: *Newton's Telecom Dictionary* (16th ed. 2000), "prepend" (Defs'. Ex. 17, Dkt. No. 303-17).

<u>Analysis</u>

The issue in dispute is whether "prepend" means "add to the front." It does. However, in the context of the '036, '241, '072, and '104 Patents, the Court does not perceive the temporal limitation proposed by Defendants.

"Prepend" is used in the patents according to its plain and ordinary meaning. *See, e.g.*, '036 Patent 14:7–11 ("the packet control sequencer 176 adds the status information generated by the fly-by sequencer 178 and any status information generated by the packet control sequencer 176, and ***prepends (adds to the front)*** that status information to the packet" (emphasis added)); *Newton's Telecom Dictionary* 672 (16th ed. 2000) ("[p]repend means added to the front of"), Dkt. No. 303-17 at 4.

The Court is not persuaded that "prepend" has the temporal limitation that Defendants ar-gue. While "prepend" is the opposite of "append," it is so in a profoundly different manner than what Defendants suggest. Specifically, the opposite of prepending a header to data is appending a header to data—not appending data to a header. Indeed, given the context of packetized data, the Court discerns no meaningful distinction between adding a header to the front of the data and adding data to the rear of the header. The header and data are simply combined with the header in front of the data (i.e., prepended) and, therefore, the data to the rear of the header.

Accordingly, the Court construes "prepend" and its variants as follows:

- "prepend" means "add to the front";

- "prepended" means "added to the front";

- "prepending" means "adding to the front."

E. "without an interrupt dividing"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
without an interrupt dividing • '241 Patent Claims 1, 18, 22	no construction necessary	indefinite

The Parties' Positions

Plaintiff submits: There is no dispute regarding the meaning of "interrupt" or "dividing" in the context of an interrupt dividing the processing of a network layer header and transport layer header. Dkt. No. 181 at 22–23. Rather, the dispute appears to be whether it makes sense to require processing not performed by the host not be divided by an interrupt to the host. *Id.* at 23 (citing Lanning Opening Decl. ¶ 56). But that dispute is not germane to the indefiniteness inquiry—one of skill in the art would know if an interrupt divides the processing, or not. *Id.*

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '241 Patent File Wrapper September 27, 2002 Application (Pl.'s Ex. J, Dkt. No. 181-10). **Extrinsic evidence**: Lanning Dep. 67:14–22 (Pl.'s Ex. P, Dkt. No. 181-16); Lanning Opening Decl. ¶¶ 55–61 (Pl.'s Ex. N, Dkt. No. 181-14); Min Rebuttal Decl. ¶ 59 (Pl.'s Ex. M, Dkt. No. 181-13).

Defendants respond: During prosecution of the '241 Patent, Plaintiff maintained that it did not know the meaning of "interrupt." Dkt. No. 303 at 25–26 (citing '241 Patent File Wrapper October 2, 2006 Reply at 14, Dkt. No. 303-12 at 15). And it does not make sense for the "interrupt" to be an interrupt to the host processor because the interface device—and not the host processor—performs the header processing. *Id.* at 26.

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '241 Patent File Wrapper August 9, 2006 Office Action (Defs.' Ex. 11, Dkt. No. 303-11), October 2, 2006 Reply (Defs.' Ex. 12, Dkt. No. 303-12). **Extrinsic evidence**: Min Rebuttal Decl. ¶ 57 (Pl.'s Ex. M, Dkt. No. 181-13); Lanning Opening Decl. ¶ 56 (Defs.' Ex. 5, Dkt. No. 303-5).

Plaintiff replies: Plaintiff's prosecution position was based not on an inability to understand "interrupt" but rather on "the difficulty involved in formulating such an opinion" and "the lack of relevance of such an opinion." Dkt. No. 307 at 17 (quoting citing '241 Patent File Wrapper October 2, 2006 Reply at 13, Dkt. No. 303-12 at 14). Now, both Plaintiff's and Defendants' experts have formulated and articulated the opinion that "interrupt" is well understood in the art. *Id.* at 17–18. Moving the header processing to the interface does not render the claims indefinite; rather, "avoiding the host processor is how the invention accomplishes the goal of eliminating host interrupts." *Id.* at 18.

Plaintiff cites further intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '241 Patent 36:24–54; '241 Patent File Wrapper October 2, 2006 Reply (Defs.' Ex. 12, Dkt. No. 303-12); Corrected Petition for Inter Partes Review of U.S. Patent No. 7,337,241 at 54–55 (Pl.'s Reply Ex. E, Dkt. No. 307-5). **Extrinsic evidence**: Min Rebuttal Decl. ¶¶ 57, 64–65 (Pl.'s Ex. M, Dkt. No. 181-13).

Analysis

The issue in dispute is whether the meaning of "without an interrupt dividing" is reasonably certain in the context of the '241 Patent. It is.

There is no dispute whether "interrupt," as used in the '241 Patent, has and had a well-understood meaning in the art. Lanning Dep. 67:14–24 ("I think an interrupt and the type of interrupt that are described in the patents-in-suit would be understood by one of ordinary skill"), Dkt. No.181-16 at 6; Lanning Opening Decl. ¶ 56 ("Interrupts were well-known in the art."), Dkt. No. 303-5 at 25; Min Rebuttal ¶ 57 ("A person of skill in the art would understand that an interrupt is a hardware or software signal that temporarily stops program execution in a computer so that another procedure can be carried out." (quotation marks and citation omitted)), Dkt. No. 181-3 at 29–31.

The Court is not persuaded that this term renders any claim indefinite simply because it may be redundant. The claim language at issue provides:

> processing the packets by a first mechanism, so that for each packet the network layer header and the transport layer header are validated without an interrupt dividing the processing of the network layer header and the transport layer header.

See, e.g., '241 Patent 98:38–42. This encompasses the embodiment of all network layer and transport layer processing being performed outside the host, on the network interface. If such processing is performed solely on the network interface, then, by necessity, there is no host interrupt dividing the process. This is the opposite of the situation in *Trustees of Columbia University v. Symantec Corporation*, where the limitation could never be met. 811 F.3d 1359, 1367 (Fed. Cir. 2016).

Accordingly, Defendants have failed to prove that "without an interrupt dividing" renders any claim indefinite.

F. **'104 Patent: "means for receiving ... a command ... ," "means for send-ing ... data ... ," and "means for sending ... an indication ..."**

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
means for receiving, by the network interface device from the computer, a command to transmit data from the computer to the network • '104 Patent Claim 22	not subject to § 112, ¶ 6 **alternative**: • function: [not disputed] • structure: a network interface device, a register on the network interface device, and equivalents thereof	subject to § 112, ¶ 6 • function: [not disputed] • structure: indefinite
means for sending, by the network interface device to the network, data corresponding to the command, including means for prepending a transport layer header to at least some of the data • '104 Patent Claim 22	not subject to § 112, ¶ 6 **alternative**: • function: [not disputed] • structure: a network interface device and equivalents thereof	subject to § 112, ¶ 6 • function: [not disputed] • structure: indefinite
means for sending, by the network interface device to the computer, an indication that the data has been sent from the network interface device to the network, prior to receiving, by the network interface device from the network, an acknowledgement (ACK) that the data has been received • '104 Patent Claim 22	not subject to § 112, ¶ 6 **alternative**: • function: [not disputed] • structure: a network interface device and equivalents thereof	subject to § 112, ¶ 6 • function: [not disputed] • structure: indefinite

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: The claims of the '104 Patent themselves recite the structure for perform-ing the function and therefore § 112, ¶ 6 does not apply. Dkt. No. 181 at 30–31. Specifically, each

"means for" limitation in Claim 22 of the '104 Patent specifies the "network interface device." *Id.* at 31. This "network interface device" is informed by the disclosure of the '104 Patent. *Id.* at 31–32. Specifically, the patent describes the claimed functions as performed by the network interface device. *Id.* This device is special-purpose hardware, not a general-purpose processor, and therefore the patent need not describe algorithms for the recited functions. *Id.* at 32–33.

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '104 Patent fig.4, 2:44–49, 3:37–44, 5:3–32, 6:14–26. **Extrinsic evidence**: Lanning Rebuttal Decl. ¶¶ 96, 98, 99, 104, 105, 110, 111 (Pl.'s Ex. O, Dkt. No. 181-15).

Defendants respond: The claims do not themselves recite sufficient structure because the "network interface device" does not "specif[y] the ***exact*** structure that performs the functions in question ***without need to resort to other portions of the specification or extrinsic evidence*** for an adequate understanding of the structure." Dkt. No. 303 at 28 (quoting *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259–60 (Fed. Cir. 2008) (emphasis by Defendants, quotation modification by the Court)). The network interface device of the '104 Patent is described as having various forms, including various peripheral units that have no apparent link to networking, and therefore is not a specific structure. *Id.* (citing '104 Patent 3:24–29). And the operation of the network interface device is described in the patent in black-box recitation of the claimed functions—there is no indication how the device actually performs the function. *Id.* at 29–31.

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '104 Patent fig.4, 2:41–49, 3:24–29, 3:37–44, 5:3–32, 6:14–26. **Extrinsic evidence**: Lanning Opening Decl. ¶¶ 135–59 (Defs.' Ex. 5, Dkt. No. 303-5); Lanning Rebuttal Decl. ¶¶ 94–113 (Def.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: The "written description [] inform[s] the analysis of whether the claim recites sufficiently definite structure to overcome the presumption that § 112, ¶ 6 governs the construction of the claim." Dkt. No. 307 at 19 (quoting *Inventio AG v. ThyssenKrupp Elevator Ams. Corp.*, 649 F.3d 1350, 1357 (Fed. Cir. 2011) (modification by the Court)). And the description of the network interface device is legally sufficient. *Id.* at 19 (citing *Technology Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338–39 (Fed. Cir. 2008); *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003)).

Analysis

There are two issues in dispute. First, whether these terms are governed by 35 U.S.C. § 112, ¶ 6. Second, if they are governed by that statute, whether the '104 Patent meets the statutory disclosure requirement. They are governed by the statute and they do not meet the disclosure requirement.

Plaintiff has failed to rebut the presumption that § 112, ¶ 6 applies. Because the terms include the "means for" language, the Court presumes that § 112, ¶ 6 applies. *Williamson v. Citrix Online, LLC*, 792 F.3d 1348–49 (Fed. Cir. 2015) (en banc in relevant portion). This presumption can be overcome if the claim includes "sufficient structure, material, or acts within the claim itself to perform entirely the recited function . . . even if the claim uses the term 'means.'" *Personalized Media Communications, L.L.C. v. International Trade Commission*, 161 F.3d 696, 704 (Fed. Cir. 1998) (citing *Sage Prods. v. Devon Indus., Inc.*, 126 F.3d 1420, 1427–28 (Fed. Cir. 1997)); *see also Williamson*, 792 F.3d at 1349 (citing *Personalized Media*). Here, the only aspect of structure for the "means for receiving, by the network interface device from the computer" or the "means for sending, by the network interface device to the network" or the "means for sending, by the network interface device to the computer" is the network interface device itself. But that device is an object

of the means and cannot itself be the means. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1365–66 (Fed. Cir. 2008) (holding that in "bank computer including means for [performing a function]" the "bank computer" could not itself be the "means" because finding the means to be that which includes the means would be "redundant and illogical"). Here, the syntactic structure of the claim language (reproduced here with emphasis by the Court) strongly suggests that "network interface device," like the "bank computer" in *Net MoneyIN*, is not coextensive with the "means." Rather, the various means enable the network interface device to receive a command from the computer, send data to the network, and send an indication to the computer. Simply, while the various "means" of the claim may be part of or attached to the network interface device, they are not just the network interface device.

> 22. A system for communication involving a computer, a network, and a network interface device of the computer, the network interface device being coupled to the network, the system comprising:
>
> means for receiving, ***by the network interface device from the computer***, a command to transmit data from the computer to the network;
>
> means for sending, ***by the network interface device to the network***, data corresponding to the command, including means for prepending a transport layer header to at least some of the data; and
>
> means for sending, ***by the network interface device to the computer***, an indication that the data has been sent from the network interface device to the network, prior to receiving, by the network interface device from the network, an acknowledgement (ACK) that the data has been received.

The Plaintiff has not identified adequate structure in the '104 Patent. As just explained, the syntactic structure of the claim language indicates that the various "means" are not simply the "network interface device." Therefore, for the same reason that identifying the "network interface device" of the claims does not take this claim language outside the ambit of § 112, ¶ 6, identifying a "network interface device" as the corresponding structure does not satisfy the disclosure requirements of § 112, ¶ 6.

Accordingly, Court determines that these terms are not adequately supported under § 112, ¶ 6.

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
means, coupled to the host computer, for receiving from outside the apparatus a response to an ISCSI read request command and for fast-path processing a portion of the response to the ISCSI read request command, the portion including data, the portion being fast-path processed such that the data is placed into the destination memory on the host computer without the protocol stack of the host computer doing significant network layer or significant transport layer processing, the means also being for receiving a subsequent portion of the response to the ISCSI read request command and for slow-path processing the subsequent portion such that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion • '205 Patent Claim 31	subject to § 112, ¶ 6 • <u>function</u>: [not disputed] • <u>structure</u>: network interface device, a processor in a network interface device, and equivalents thereof	subject to § 112, ¶ 6 • <u>function</u>: [not disputed] • <u>structure</u>: indefinite

The Parties' Positions

Plaintiff submits: The structure for performing the functions recited in Claim 31 of the '205 Patent is repeatedly described in the patent as the network interface device. Dkt. No. 181 at 33–34. This meets the statutory disclosure requirement: "all one needs to do in order to obtain the benefit of § 112, ¶ 6 is to recite some structure corresponding to the means in the specification." *Id.* at 33 (quoting *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007)).

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '205 Patent 4:42–46, 17:13–18, 39:39–53, 39:57–62, 40:12–14. **Extrinsic evidence**: Lanning Rebuttal Decl. ¶ 118 (Pl.'s Ex. O, Dkt. No. 181-15).

Defendants respond: There are four functions recited: (1) "receiving . . . a response . . . ," (2) "fast-path processing a portion of the response . . . ," (3) "receiving a subsequent portion of the response . . . ," and (4) "slow-path processing the subsequent portion . . . ." Dkt. No. 303 at 31–32. And the means for performing these functions must be "coupled to the host computer." *Id.* at 32. But the '205 Patent does not disclose any structure for performing these functions that is coupled to the host computer. *Id.* Specifically, the patent discloses that "slow-path processing" is performed by the host computer and not the network interface device. *Id.* Indeed, Claim 31 itself recites that the "slow-path processing" is performed by "the protocol stack of the host computer." *Id.* 33. As such, the patent does not satisfy the disclosure requirements of § 112, ¶ 6. *Id.*

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '205 Patent, at [57] Abstract, 4:42–46, 17:13–18; '809 Provisional (Defs.' Ex. 1, Dkt. No. 303-1). **Extrinsic evidence**: Lanning Opening Decl. ¶¶ 160–65 (Defs.' Ex. 5, Dkt. No. 303-5); Lanning Rebuttal Decl. ¶¶ 114–19 (Defs.' Ex. 6, Dkt. No. 303-6); Min Dep. 274:17–275:1 (Defs.' Ex. 4, Dkt. No. 303-4).

Plaintiff replies: Claim 31 recites the structure for performing the "slow-path processing . . ."; namely, "the protocol stack of the host computer." Dkt. No. 307 at 19–20. Therefore, that function is taken out of the § 112, ¶ 6 analysis and the "means"—the network interface device—need only route the "subsequent portion" to "the protocol stack of the host computer." *Id.* at 20.

Analysis

The issue in dispute distills to whether the '205 Patent adequately discloses structure for a "means, coupled to the host computer, for . . . slow-path processing the subsequent portion such

that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion." It does.

The '205 Patent explains—and the claim expressly recites—that the network- and transport-layer processing of the slow-path processing is performed by the host computer. As stated in the claim,

> the means also being for receiving a subsequent portion of the response to the ISCSI read request command and *for slow-path processing the subsequent portion such that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion*.

'205 Patent 46:23–29 (emphasis added). That is, a function performed by (and in part defining) the means, is slow-path processing *such that* the network- and transport-layer processing is performed by the host computer. The patent provides that the network interface is the corresponding structure for this function. Specifically, "[e]ven for a slow-path processing of a message, the INIC 22 thus performs initial procedures such as validation and determination of message type, and passes the validated message at least to the data link layer of the host." *Id*. at 17:15–18. That is, the network interface device that is coupled to the host computer performs the slow-path processing by passing the message on to the host "such that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion."

Accordingly, Court determines that there is adequate disclosure of structure for this term:

- the structure is "network interface device, a processor in a network interface device, and equivalents thereof."

H.   '241 Patent: Mechanism Terms

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
[processing the packets by a] first mechanism, [so that . . .] [sending, by the] first mechanism [the data from each packet . . .] [processing the second plurality of packets by the] first mechanism, [so that . . .] • '241 Patent Claims 1, 7	not subject to § 112, ¶ 6 **alternative**: • <u>function</u>: [not disputed] • <u>structure</u>: a network interface device, a register on the network interface device, and equivalents thereof	subject to § 112, ¶ 6 • <u>function</u>: [not disputed] • <u>structure</u>: indefinite
[processing a transport layer header of another packet by a] second mechanism [. . .] • '241 Patent Claim 5	not subject to § 112, ¶ 6 **alternative**: • <u>function</u>: [not disputed] • <u>structure</u>: a host CPU operating a TCP protocol stack, as detailed in, e.g., '241 patent, 9:34-48, 9:66 to 10:23, 39:32-45, 43:9-35, Fig. 4B, and equivalents thereof	subject to § 112, ¶ 6 • <u>function</u>: [not disputed] • <u>structure</u>: the host CPU operating the software described at '241 patent, 9:34-48, 9:66 to 10:23, 39:32-45, 43:9-35, Fig. 4B, and equivalents thereof
[providing by a] first mechanism [a block of data and a Transmission Control Protocol (TCP) connection] • '241 Patent Claim 17	not subject to § 112, ¶ 6 **alternative**: • <u>function</u>: [not disputed] • <u>structure</u>: a host CPU operating a TCP protocol stack, as detailed in, e.g., '241 patent, 7:42-58; 17:20-36; Fig. 11; and equivalents thereof	subject to § 112, ¶ 6 • <u>function</u>: [not disputed] • <u>structure</u>: the host CPU operating the software described at '241 patent, 9:34-48, 9:66 to 10:23, 39:32-45, 43:9-35, Fig. 4B, and equivalents thereof

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
[dividing, by a] second mechanism [, the block of data into multiple segments] • '241 Patent Claim 17	not subject to § 112, ¶ 6 **alternative**: • <u>function</u>: [not disputed] • <u>structure</u>: a network interface device, a processor in the network interface device, and equivalents thereof	subject to § 112, ¶ 6 • <u>function</u>: [not disputed] • <u>structure</u>: indefinite

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: The presumption against application of § 112, ¶ 6 holds because the claims are method claims, not apparatus claims, and the § 112, ¶ 6 analysis should therefore focus on steps for the recited functions rather than mechanisms for the recited functions. Dkt. No. 181 at 35. Specifically, "the point of novelty resides with the steps of these methods, not with the machine that performs them." *Id.* at 35–36 (citing *Cox Commc'ns, Inc. v. Sprint Commc'n Co. LP*, 838 F.3d 1229, 1231 (Fed. Cir. 2016)). And even if § 112, ¶ 6 applies to the "mechanism" terms, they are supported by the disclosure of the '241 Patent. *Id.* at 36 (citing Min Rebuttal Decl. ¶¶ 241, 243).

In addition to the claims themselves, Plaintiff cites the following **extrinsic evidence** to support its position: Min Rebuttal Decl. ¶¶ 237, 238, 241, 243 (Pl.'s Ex. M, Dkt. No. 181-13).

Defendants respond: Method claims may include means-plus-function limitations that are subject to § 112, ¶ 6—the Federal Circuit has in fact held "mechanism" in a method to be governed by the statute. Dkt. No. 303 at 34–35 (citing *Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1373 (Fed. Cir. 2015)). The patent fails the disclosure requirement of the statue

with respect to the "first mechanism" term of Claims 1 and 7 and the "second mechanism" term of Claim 17 because it does not describe any structures adequate to perform the corresponding functions. *Id.* at 35–36 (citing Lanning Opening Decl. ¶¶ 169–71, 176–81; Lanning Rebuttal Decl. ¶¶ 131–36). The "second mechanism" of Claim 5 and the "first mechanism" of Claim 17 are restricted to the structure disclosed at '241 Patent fig.4B, 9:34–48, 9:66–10:23, 39:32–45, 43:9–35, and equivalents. *Id.* at 36.

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '241 Patent fig.4B, 9:34–48, 9:66–10:23, 39:32–45, 43:9–35. **Extrinsic evidence**: Lanning Opening Decl. ¶¶ 168–71, 176–81 (Defs.' Ex. 5, Dkt. No. 303-5); Lanning Rebuttal Decl. ¶¶ 123–24, 131–36 (Defs.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: Method claims are governed by § 112, ¶ 6 only in unusual circumstances that Defendants have not established; therefore, the presumption against the statue holds. Dkt. No. 307 at 20–21 (citing *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349–50 (Fed. Cir. 2015)). With respect to the network interface device corresponding to the "first mechanism" of Claims 1 and 7 and the "second mechanism" of Claim 17, a "person of skill in the art would understand how [to] create such a device given the disclosures in the specification" and there is no need to disclose an algorithm for the special-purpose hardware. *Id.* at 21–22. With respect to the CPU operating the TCP protocol stack corresponding to the "second mechanism" of Claim 5 and "first mechanism" of Claim 17, the only software required is the protocol stack, it is not limited to the details provided in the specification. *Id.* at 22–23.

Plaintiff cites further intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '241 Patent 9:34–48, 9:66–10:23, 39:32–45. **Extrinsic evidence**: Min Opening Decl.

¶¶ 144–45 (Pl.'s Ex. L, Dkt. No. 181-12); Min Rebuttal Decl. ¶ 240 (Pl.'s Ex. M, Dkt. No. 181-13); Lanning Rebuttal Decl. ¶¶ 125, 135 (Pl.'s Ex. O, Dkt. No. 181-15).

Analysis

There are two issues in dispute. First, whether these terms are governed by 35 U.S.C. § 112, ¶ 6. Second, if they are governed by that statute, whether the '241 Patent meets the statutory disclosure requirement. They are governed by the statute and the '241 Patent satisfies the disclosure requirement.

The "mechanism" terms are structural terms that are meaningful to the scope of the method claims. Method claims may include structural limitations that require the steps of the method be performed in, by, or on a specific structure. *See, e.g.*, *Microprocessor Enhancement Corp. v. Tex. Instruments, Inc.*, 520 F.3d 1367, 1374–75 (Fed. Cir. 2008) ("Direct infringement of claim 1 is clearly limited to practicing the claimed method in a pipelined processor possessing the requisite structure."). Method claims may also recite structure that does not meaningfully alter the scope of the claims. *See, e.g.*, *Cox Commc'ns, Inc. v. Sprint Commc'n Co. LP*, 838 F.3d 1224, 1229–30 (Fed. Cir. 2016) ("'processing system,' plays no discernable role in defining the scope of the claims. . . . the point of novelty resides with the steps of the[] methods, not with the machine that performs them. 'Processing system' is merely the locus at which the steps are being performed.").[18] Here, the mechanism terms are more than "merely the locus at which the steps are being performed." For example, Claim 17 of the '241 Patent, reproduced below with emphasis by the Court, recites "a first mechanism" and a "second mechanism." Treating these two mechanisms as playing

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[18] *Cox Commc'ns* is not inapposite simply because the parties there agreed that § 112, ¶ 6 did not apply to "processing system." Rather, *Cox Commc'ns* concerns the role of recited structure in a method claim, regardless of how that structure is recited.

no discernable role in defining claim scope improperly ignores the import of "first" and "second"

in these terms. *See Info-Hold, Inc. v. Muzak LLC,* 783 F.3d 1365, 1373 (Fed. Cir. 2015) ("Claims must be interpreted with an eye toward giving effect to all terms in the claim."). That is, the recitation of two mechanisms suggests that these terms play a meaningful role in defining claim scope. There is, for example, a meaningful difference between Claim 17 as issued and a claim that recites the "providing," "dividing," and "prepending" steps are all performed by the first mechanism. The reasoning of *Cox Commc'ns* does not hold for the claims at issue here.

> 17. A method for communicating information over a network, the method comprising:
>
>   providing, ***by a first mechanism***, a block of data and a Transmission Control Protocol (TCP) connection;
>
>   dividing, ***by a second mechanism***, the block of data into multiple segments;
>
>   prepending, ***by the second mechanism***, an outbound packet header to each of the segments, thereby forming an outbound packet corresponding to each segment, the outbound packet header containing an outbound media access control layer header, an outbound Internet Protocol (IP) header and an outbound TCP header, wherein the prepending of each outbound packet header occurs without an interrupt dividing the prepending of the outbound media access control layer header, the outbound (IP) header and the outbound TCP header; and transmitting the outbound packets to the network.

The "mechanism" terms are governed by § 112, ¶ 6. The terms do not include the "means" language. Therefore, the Court presumes that § 112, ¶ 6 does not apply. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). "[T]he presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Id.* at 1349 (quotation marks omitted). In the relevant claims, the "mechanism" terms are defined solely by the fact that they perform the functions recited in the claims. The term "mechanism," in the context of the '241 Patent's disclosure and claims, does not itself connote sufficiently definite structure. Rather, it is used in claims equivalently to "means," a nonce word indicating structure for performing a function but that does not indicate a definite structure. Thus, the terms are governed by § 112, ¶ 6.

The '241 Patent adequately discloses structure for performing the recited functions. To satisfy the structural-disclosure requirement of § 112, ¶ 6, "all one needs to do . . . is to recite some structure corresponding to the means in the specification, as the statute states, so that one can readily ascertain what the claim means and comply with the particularity requirement of § 112, P 2." *Biomedino, LLC v. Waters Techs. Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007) (quotation-modification marks omitted). "This is not a high bar." *Id*. Indeed, the details of how the identified structure performs the recited function need not necessarily be disclosed to satisfy § 112, ¶ 6. *See, e.g.*, *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008) (linking a "black box" detector with the function satisfied the statute); *Intel Corp. v. VIA Techs.*, 319 F.3d 1357, 1366–67 (Fed. Cir. 2003) (disclosing the "core logic of a computer modified to perform" the function, but without disclosing the details of the modification, satisfied the statute). For the "first mechanism" of Claim 1 and the "second mechanism" of Claim 17, a network interface device is linked to the recited functions. Min Rebuttal ¶ 241, Dkt. No. 181-13 at 127–29. The Court does not understand "network interface device" to denote a general-purpose computer, but rather understands it as a name for specific hardware. As such, it is not subject to the algorithm-disclosure requirements set forth in *Aristocrat Techs. Austl. PTY Ltd. v. Int'l Game Tech.*, 521 F.3d 1328 (Fed. Cir. 2008). For the "first mechanism" of Claim 17 and the "second mechanism" of Claim 5, the structure linked to the recited functions is the described protocol stack. Min Rebuttal ¶ 243, Dkt. No. 181-13 at 130–33. However, as set forth in the Court's identification of structure below, the structure associated with a particular recited function is not necessarily the entirety of the described protocol stack. *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999) (§ 112, ¶ 6 does not permit "incorporation of structure from the written description beyond that necessary to perform the claimed function").

Accordingly, Court determines that there is adequate disclosure of structure for these term:

- the structure for "first mechanism" in Claim 1 of the '241 Patent is "a network interface device, a register on the network interface device, and equivalents thereof";

- the structure for "second mechanism" in Claim 5 of the '241 Patent is "a host CPU operating a protocol stack as detailed at '241 Patent fig.4B, 9:34–48, 9:66–10:23, 39:32–45, 43:9–35, and equivalents thereof";

- the structure for "first mechanism" in Claim 17 of the '241 Patent is "a host CPU operating a protocol stack as detailed at '241 Patent fig.11, 7:42–58, 17:20–36, and equivalents thereof";

- the structure for "second mechanism" in Claim 17 of the '241 Patent is "a network interface device, a processor in the network interface device, and equivalents thereof."

I. "flow key" and "flow re-assembler"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
flow key • "880 Patent Claim 32	no construction necessary	indefinite
flow re-assembler • '880 Patent Claim 41	no construction necessary	subject to §112, ¶ 6 • <u>function</u>: re-assembling a data portion of said first packet with a data portion of a second packet in said communication flow • <u>structure</u>: Indefinite

Because the parties' arguments and proposed constructions with respect to these terms are related, the Court addresses the terms together.

The Parties' Positions

Plaintiff submits: In the context of the '880 Patent's disclosure and the surrounding claim language, "flow key" plainly refers to an identifier (key) of a connection or communication flow

(as expressly recited). Dkt. No. 181 at 25–26. A "re-assembler," under its plain meaning in the art, is structure for assembling data; thus, the "flow re-assembler" is structure that stores and re-assembles flow data. *Id*. at 27. This is explicit in Claims 41 and 43. This relates to the frame buffering described in the '880 Patent at column 76, lines 14 through 23 and the frame processing described at column 22, lines 61 through 63. *Id.* at 27–28. Thus, the term denotes structure and is not governed by § 112, ¶ 6.

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '880 Patent 22:61–63, 29:35–48, 36:38–46, 37:66–38:21, 64:14–17, 76:14–24. **Extrinsic evidence**: *Random House Webster's Dictionary* (1999), "key" (Pl.'s Ex. Q, Dkt. No. 181-17); *Webster's New World Dictionary of Computer Terms* (8th ed. 2000), "key" (Pl.'s Ex. R, Dkt. No. 181-18); Lanning Opening Decl. ¶¶ 100–01, 103, 112, 120 (Pl.'s Ex. N, Dkt. No. 181-14); Min Rebuttal Decl. ¶¶ 82, 85, 86, 94, 105, 126–27, 144, 147, 155, 157 (Pl.'s Ex. M, Dkt. No. 181-13).

Defendants respond: The terms "flow key" and "flow re-assembler" are not found in the patent other than in the claim set, are not terms of art, and "flow" is used in the description to refer to data movement in the fast and slow paths rather than to connections or reassembly of packet data. Dkt. No. 303 at 37. With respect to "flow key," the patent describes neither a key to the fast- or slow-path data flows or a key that contains "a TCP connection for the communication flow and a first hop medium access control (MAC) layer address," as recited in Claim 32. *Id.* at 38. With respect to "flow re-assembler," the term is simply a verbal construct equivalent to means for performing the recited reassembly function and is thus subject to § 112, ¶ 6. *Id.* at 39. The patent does not describe a re-assembler for the fast or slow-path data flows, and the only reassembly described

concerns reassembly of IP-fragmented packets performed in the host computer, not in the network interface as recited in Claim 41.

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '880 Patent 5:52–54, 6:38–47, 22:61–63, 29:14–16, 29:35–48, 76:14–24; '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference (Defs.' Ex. 14, Dkt. No. 303-14), Mar. 15, 2011 Supplemental Response (Defs.' Ex. 15, Dkt. No. 303-15); '809 Provisional (Defs.' Ex. 1, Dkt. No. 303-1); U.S. Patent No. 6,453,360. **Extrinsic evidence**: Lanning Opening Decl. ¶¶ 71, 80–84, 88–91, 100–101, 103 (Defs.' Ex. 5, Dkt. No. 303-5); Lanning Rebuttal Decl. ¶¶ 45–47 (Defs.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: The "flow key" of the claims is consistent with the "hash key" of the description. Dkt. No. 307 at 23. "Flow re-assembler" is presumptively not governed by § 112, ¶ 6, and Defendants have not overcome that presumption.

Plaintiff cites further intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '880 Patent 7:59–60; May 9, 2017 Petition for Inter Partes Review of U.S. Patent No. 8,131,880 at 30 (Pl.'s Reply Ex. F, Dkt. No. 307-6); May 9, 2017 Petition for Inter Partes Review of U.S. Patent No. 8,131,880 at 78 (Pl.'s Reply Ex. G, Dkt. No. 307-7). **Extrinsic evidence**: Min Opening Decl. ¶ 84 (Pl.'s Ex. L, Dkt. No. 181-12); Min Rebuttal Decl. ¶¶ 94, 133 (Pl.'s Ex. M, Dkt. No. 181-13); Lanning Opening Decl. ¶¶ 80–84, 90–91 (Pl.'s Ex. N, Dkt. No. 181-14).

Analysis

There are three issues in dispute. First, whether the meaning of "flow key" is reasonably certain. Second, whether "flow re-assembler" is governed by 35 U.S.C. § 112, ¶ 6. Third, if subject to § 112, ¶ 6, does the '880 Patent satisfy the disclosure requirement of that statute. Both of these

terms were introduced by copying a claim set from another patent in an attempt to force an interference. As part of the request to provoke an interference proceeding, the patentee mapped the claim terms to concepts in the disclosure of the application for the '880 Patent. In the context of the mappings, the meanings of "flow key" and "flow re-assembler" are reasonably certain.

The meaning of flow key as a context identifier is reasonably certain. To begin, "flow key" must be understood in the context of the surrounding claim language:

> generating a *flow key* from said source identifier and said destination identifier to identify a communication flow comprising said packet, wherein said *flow key* includes a TCP connection for the communication flow and a first hop medium access control (MAC) layer address . . . .

'880 Patent 93:11–15 (emphasis added). Further, when mapping "flow key" to connection context in the interference request, the patentee identified the '880 Patent's disclosure that (1) CCBs are initialized when the TCP connection is setup, (2) CCBs contain the connection context, including "source and destination IP addresses and source and destination TCP ports that define the connection," and (3) the context is "identified by the IP source and destination addresses and TCP source and destination ports." '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 58, Dkt. No. 181-23 at 59) (emphasis removed). That is, the patentee stated that the "flow key" that identified "a communication flow" limitation was met by the context identifier. Defendants improperly ignore this intrinsic evidence and instead focus on a use of "flow" that—they argue—is nonsensical in the context of the claims.

With respect to "flow re-assembler," Defendants have not overcome the presumption against application of § 112, ¶ 6. The Court begins with the presumption that § 112, ¶ 6 does not apply because the term does not include the "means" language traditionally used to signal application of the statute. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir.

2015) (en banc in relevant portion). This "presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Id.* at 1349 (quotation marks omitted). Here, Defendants have not overcome the presumption.

"Flow re-assembler" connotes structure—software/hardware that includes functionality for reassembling flow data. Claim 41, reproduced here with emphasis by the Court, details how the re-assembler functions in the claim: it is disposed in a network interface, it takes data from a first packet received from a network, it takes data from a second packet received from a network, and it reassembles the data. Further, in the interference request, "flow re-assembler" was mapped to the ordered DMA of data buffers into host memory. *See, e.g.*, '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 62, Dkt. No. 181-23 at 63. This is in the context of receiving packetized messages

> 41. An apparatus for transferring a packet to a host computer system, comprising:
>   a traffic classifier, disposed in a network interface for the host computer system, configured to classify a first packet received from a network by a communication flow that includes said first packet;
>   a packet memory, disposed in the network interface, configured to store said first packet;
>   a packet batching module, disposed in the network interface, configured to determine whether another packet in said packet memory belongs to said communication flow;
>   a *flow re-assembler*, disposed in the network interface, configured to re-assemble a data portion of said first packet with a data portion of a second packet in said communication flow; and
>   a processor, disposed in the network interface, that maintains a TCP connection for the communication flow, the TCP connection stored as a control block on the network interface.

over a network and writing the data in those packets to host memory, where "[t]he order in which data is written is important." *See* '880 Patent 12:14–13:59; *see also id.* at 76:20–22 ("Incoming frames are processed, assembled then transferred to host memory under the control of the protocol processor."); Min Rebuttal ¶ 94 (noting that "reassembly [is] an inherent part of the process of transmitting certain messages over a network"), Dkt. No. 181-13 at 49. In this context, "flow re-

assembler" connotes structure. Ultimately, Defendants have failed to overcome the presumption against application of § 112, ¶ 6.

Accordingly, the Court determines that Defendants have failed to prove that either "flow key" or "flow re-assembler" renders any claim indefinite. Further, the court construes the terms as follows:

- "flow key" means "context identifier."

J.   "operation code"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
operation code • '880 Patent Claim 32	status data	the portion of a machine language or assembly language instruction that specifies the type of instruction and the structure of the data on which it operates

The Parties' Positions

Plaintiff submits: The claims require that the operation code identifies or indicates the status of a packet and the patent describes an exemplary embodiment of the code as a "status word." Dkt. No. 181 at 20. Defendants' proposed definition of "operation code" should be rejected because it would render the code unable to identify or indicate the status of a packet, as explicitly claimed. *Id.*

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '880 Patent 7:47–60, 53:63–54:6, 63:28–64:18. **Extrinsic evidence**: *Webster's New World Dictionary of Computer Terms* (8th ed. 2000), "word" (Pl.'s Ex. R, Dkt. No. 181-18); *Microsoft Computer Dictionary* (4th ed. 1999), "word"

(Pl.'s Ex. T, Dkt. No. 181-20); Lanning Rebuttal Decl. ¶¶ 87–93 (Pl.'s Ex. O, Dkt. No. 181-15); Min Opening Decl. ¶ 110 (Pl.'s Ex. L, Dkt. No. 181-12).

Defendants respond: "Operation code" does not appear in the description of the '880 Patent and therefore the term was not redefined from it ordinary meaning, as provided in *Microsoft Press Computer Dictionary* (3d ed. 1997). Dkt. No. 303 at 41–42. Therefore, the dictionary definition should be adopted. *Id.*

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '880 Patent 63:51–53, 81:1–4. **Extrinsic evidence**: *Microsoft Press Computer Dictionary* (3d ed. 1997), "operation code" (Defs.' Ex. 16, Dkt. No. 303-16); Lanning Rebuttal Decl. ¶¶ 89, 90–92 (Defs.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: Defendants' proposed construction is improperly divorced from the patent and the surrounding claim language—and would render the claim inoperable. Dkt. No. 307 at 25.

Analysis

The issue in dispute distills to whether "operation code" should be given the dictionary definition provided by Defendants. It should not.

Defendants' proposed construction—and the dictionary definition on which it is based—is not properly tied to the technological context of the '880 Patent's disclosure, and the intrinsic record. Claim 32 recites "associating an operation code with said packet, wherein said operation code identifies a status of said packet." Thus, the "operation code" is explicitly something that is associated with a packet and identifies the status of the packet. "Operation code" was mapped to the application's "status word" in the interference request. *See, e.g.*, '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 59, Dkt. No. 181-23 at 60. The "status word" is described

in the patent as something that summarizes the header of an incoming frame to facilitate associat-

ing the frame with a communication control block (CCB) that identifies a connection. '880 Patent

7:15–62; *see also id*. at 53:59–54:6 (describing that the status word includes information regarding

whether the frame is associated with a fast-path or slow-path connection). Defendants' proposed

construction is improperly divorced from this context. *See Phillips v. AWH Corp.*, 415 F.3d 1303,

1316 (Fed. Cir. 2005) (en banc) ("The claims are directed to the invention that is described in the

specification; they do not have meaning removed from the context from which they arose." (quot-

ing *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001))).

Accordingly, the Court rejects Defendants' proposed construction and construes "operation

code" as follows:

- "operation code" means "status data."

K.   "database"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
database • '880 Patent Claim 32	collection of organized data	a collection of logically re-lated data stored together in one or more computerized files

The Parties' Positions

Plaintiff submits: Under the plain meaning of database, it does not need to be data stored

as files. Dkt. No. 181 at 19. Indeed, the CCB cache described in the '880 Patent is a database that

is not stored as files and would improperly be excluded from Defendants' proposed construction.

Id. (citing '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 51, Dkt. No.

181-23 at 52).

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference (Pl.'s Ex. W, Dkt. No. 181-23). **Extrinsic evidence**: *Random House Webster's Dictionary* (1999), "database" (Pl.'s Ex. Q, Dkt. No. 181-17); *Webster's New World Dictionary of Computer Terms* (8th ed. 2000), "database" (Pl.'s Ex. R, Dkt. No. 181-18); Lanning Rebuttal Decl. ¶¶ 60–73 (Pl.'s Ex. O, Dkt. No. 181-15).

Defendants respond: The term "database" does not appear in the disclosure of the '880 Patent. Dkt. No. 303 at 42–43. Plaintiff's proposed construction is so broad as to encompass data collections that are not databases, such as a cache. *Id.* Further, the proposed construction is not supported by Plaintiff's cited dictionaries, which each require data in a database to be related. *Id.*

In addition to the claims themselves, Defendants cite the following **extrinsic evidence** to support their position: *Random House Webster's Dictionary* (1999), "database" and "key" (Pl.'s Ex. Q, Dkt. No. 181-17); *Webster's New World Dictionary of Computer Terms* (8th ed. 2000), "database" (Pl.'s Ex. R, Dkt. No. 181-18); Lanning Rebuttal Decl. ¶¶ 62, 65, 73 (Defs.' Ex. 6, Dkt. No. 303-6).

Plaintiff replies: Defendants' proposed construction is based solely on the conclusory opinion of its expert and is inconsistent with the intrinsic record and improperly excludes embodiments. Dkt. No. 307 at 25–26.

Plaintiff cites further **extrinsic evidence** to support its position: Min Opening Decl. ¶¶ 92–93 (Pl.'s Ex. L, Dkt. No. 181-12).

Analysis

There are two issues in dispute. First, whether the data of a database is necessarily "logically related." Second, whether the data of a database is necessarily "stored together in one or more

computerized files." With respect to the first issue, the Court agrees that the data is related, but declines to require that the data be ***logically*** related because it is unclear from the record what it means to be logically related. With respect to the second issue, the Court understand that the database is electronic, but declines to require that the data be "stored together in one or more computerized files."

Defendants' proposed construction of "database" would improperly exclude from the scope of that word the very embodiment that the patentee identified when mapping the "database" limitation to the patent application in the interference request. Specifically, "database" was mapped to the application's "CCB cache" in the interference request. *See, e.g.*, '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 58–59, Dkt. No. 181-23 at 59–60. Thus, in the context of the intrinsic record, "database" plainly encompasses a cache. Defendants' extrinsic evidence cannot be used to contradict this plain meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (extrinsic evidence may not be "used to contradict claim meaning that is unambiguous in light of the intrinsic evidence").

The extrinsic evidence suggests, however, that a database is not just an organized collection of data, but rather is an organized collection of ***related*** data. For example, *Random House* defines a database as "a collection of organized related data, esp. in electronic form that can be accessed and manipulated by special computer software." *Random House Webster's Dictionary* 8987 (1999), Dkt. No. 181-17 at 8. This comports with the use of database in the intrinsic record. For example, the cache identified in the interference request includes data related by virtue that it pertains to connections. *See, e.g.*, '880 Patent 7:15–28.

Accordingly, the Court construes "database" as follows:

- "database" means "collection of organized related data."

L.   "packet batching module"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
packet batching module • '880 Patent Claim 41	no construction necessary	subject to §112, ¶ 6 • <u>function</u>: determining whether another packet in said packet memory belongs to said communication flow • <u>structure</u>: indefinite

The Parties' Positions

Plaintiff submits: The plain meaning of this term in the art refers to software or circuitry used to determine appropriate batches of data packets. Dkt. No. 181 at 28. This meaning is clear from the claims. For example, Claim 41 recites that the module is "configured to determine whether another packet in said packet memory belongs to said communication flow" that includes a first packet. *Id.* at 28–29. And the plain meaning—and structure—of the module is apparent from the described embodiment in which a hash table is used to determine if there is an existing context (CCB) relevant to an incoming packet. *Id.* at 29 (citing '880 Patent 64:10–17).

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '880 Patent 64:10–17. **Extrinsic evidence**: Lanning Opening Decl. ¶¶ 123, 126 (Pl.'s Ex. N, Dkt. No. 181-14); Min Rebuttal Decl. ¶¶ 167, 168, 170 (Pl.'s Ex. M, Dkt. No. 181-13).

Defendants respond: "Packet batching module" is not found in the disclosure of the '880 Patent. Dkt. No. 303 at 43. The term is governed by § 112, ¶ 6 because it does not sufficiently

denote structure—"module" is a nonce word. *Id.* And the patent fails to satisfy the statutory disclosure requirement. *Id.* at 43–44. Specifically, the disclosure of microcode on the receive sequencer is not structure because there is no disclosure of the algorithm. *Id.*

In addition to the claims themselves, Defendants cite the following **extrinsic evidence** to support their position: Lanning Opening Decl. ¶¶ 123–24, 126 (Defs.' Ex. 5, Dkt. No. 303-5).

Plaintiff replies: "Packet batching module" is a structural term and therefore is not governed by § 112, ¶ 6. Dkt. No. 307 at 26. The claim itself conveys this structure in that it provides the objectives and operation of the module. *Id.*

Plaintiff cites further **intrinsic evidence** to support its position: May 9, 2017 Petition for Inter Partes Review of U.S. Patent No. 8,131,880 at 76 (Pl.'s Reply Ex. G, Dkt. No. 307-7).

<u>Analysis</u>

There are two issues in dispute. First, whether "packet batching module" is governed by 35 U.S.C. § 112, ¶ 6. Second, if it is governed by that statute, whether the '880 Patent meets the statutory disclosure requirement. It is not governed by the statute and therefore is not subject to the disclosure requirement.

Defendants have not overcome the presumption against application of § 112, ¶ 6. The Court begins with the presumption that § 112, ¶ 6 does not apply because the term does not include the "means" language traditionally used to signal application of the statute. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). This "presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Id.* at 1349 (quotation marks omitted). Here, Defendants have not overcome the presumption.

"Packet batching module" connotes structure—software/hardware that includes functionality for determining whether multiple packets belong to the same communication flow. Claim 41, reproduced here with emphasis by the Court, details how the packet batching module functions in the claim: it is disposed in a network interface and it uses information regarding the packet memory and the communication flow to determine if a given packet is associated with the communication flow (and thus belong to the batch of packets associated with the flow). Further, in the interference request, "packet batching model" was mapped to the application's "hash" structure generated by the "receive sequencer" and "used to index directly into a hash table on the INIC that points to entries in a CCB header table" by "comparing [each CCB entry's] source and destination addresses and ports with those of the frame." *See, e.g.*, '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 61–62, Dkt. No. 181-23 at 63–64; *see also* '880 Patent 64:4–18. That is, the packet batching module associates an incoming frame with an existing CCB associated with other frames (when appropriate). This comports with packet batching in the art. Min Rebuttal ¶¶ 167–68, Dkt. No. 181-13 at 84–85. In this context, "packet batching module" connotes structure. Ultimately, Defendants have failed to overcome the presumption against application of § 112, ¶ 6.

> 41. An apparatus for transferring a packet to a host computer system, comprising:
>   a traffic classifier, disposed in a network interface for the host computer system, configured to classify a first packet received from a network by a communication flow that includes said first packet;
>   a packet memory, disposed in the network interface, configured to store said first packet;
>   a *packet batching module*, disposed in the network interface, configured to determine whether another packet in said packet memory belongs to said communication flow;
>   a flow re-assembler, disposed in the network interface, configured to re-assemble a data portion of said first packet with a data portion of a second packet in said communication flow; and
>   a processor, disposed in the network interface, that maintains a TCP connection for the communication flow, the TCP connection stored as a control block on the network interface.

Accordingly, the Court determines that § 112, ¶ 6 does not apply and that Defendants have failed to prove that the "packet batching module" renders any claim indefinite.

M.   "traffic classifier"

Disputed Term	Plaintiff's Proposed Construction	Defendants' Proposed Construction
traffic classifier • '880 Patent Claim 41	no construction necessary	subject to §112, ¶ 6 • <u>function</u>: classifying a first packet received from a network by a communication flow that includes said first packet • <u>structure</u>: indefinite

The Parties' Positions

Plaintiff submits: Under its plain meaning, "traffic classifier" denotes structure comprising software or circuitry that "identifies, groups, and/or prioritizes incoming data." Dkt. No. 181 at 24. An exemplary "traffic classifier" is the receive hardware sequencer described in the '880 Patent. *Id.* at 24–25 (citing '880 Patent 59:27–33).

In addition to the claims themselves, Plaintiff cites the following intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: '880 Patent 29:27–33, 59:27–33, 63:25–63, 64:4–18. **Extrinsic evidence**: Min Rebuttal Decl. ¶¶ 175–78, 180 (Pl.'s Ex. M, Dkt. No. 181-13); Lanning Opening Decl. ¶¶ 130, 131, 133 (Pl.'s Ex. N, Dkt. No. 181-14).

Defendants respond: "Traffic classifier" is not found in the disclosure of the '880 Patent and was not a term of art in 1997. Dkt. No. 303 at 44–45. Because it is expressed in purely functional terms, it is subject to § 112, ¶ 6. *Id.* And the patent fails to disclose adequate structure for performing the function. *Id.* at 45. Specifically, the disclosure of the receive hardware sequencer does not include an algorithm. *Id.*

In addition to the claims themselves, Defendants cite the following intrinsic and extrinsic evidence to support their position: **Intrinsic evidence**: '880 Patent File Wrapper June 19, 2003

Request to Provoke Interference (Defs.' Ex. 14, Dkt. No. 303-14), March 15, 2011 Supplemental Response (Defs.' Ex. 15, Dkt. No. 303-15). **Extrinsic evidence**: Lanning Opening Decl. ¶¶ 129–31 (Defs.' Ex. 5, Dkt. No. 303-5); Min Rebuttal Decl. ¶¶ 177–78 (Pl.'s Ex. M, Dkt. No. 181-13).

Plaintiff replies: "Traffic classifier" is a structural term and therefore is not governed by § 112, ¶ 6. Dkt. No. 307 at 27.

Plaintiff cites further intrinsic and extrinsic evidence to support its position: **Intrinsic evidence**: May 9, 2017 Petition for Inter Partes Review of U.S. Patent No. 8,131,880 at 70–71, 81 (Pl.'s Reply Ex. G, Dkt. No. 307-7). **Extrinsic evidence**: Lanning Opening Decl. ¶ 129 (Pl.'s Ex. N, Dkt. No. 181-14); Min Rebuttal Decl. ¶ 179 (Pl.'s Ex. M, Dkt. No. 181-13).

Analysis

There are two issues in dispute. First, whether "traffic classifier" is governed by 35 U.S.C. § 112, ¶ 6. Second, if it is governed by that statute, whether the '880 Patent meets the statutory disclosure requirement. It is not governed by the statute and therefore is not subject to the disclosure requirement.

Defendants have not overcome the presumption against application of § 112, ¶ 6. The Court begins with the presumption that § 112, ¶ 6 does not apply because the term does not include the "means" language traditionally used to signal application of the statute. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 & n.3 (Fed. Cir. 2015) (en banc in relevant portion). This "presumption can be overcome and § 112, para. 6 will apply if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Id.* at 1349 (quotation marks omitted). Defendants have not overcome the presumption.

"Traffic classifier" connotes structure—software/hardware that includes functionality for determining characteristic properties of incoming packets. Claim 41, reproduced here with emphasis by the Court, details how the traffic classifier functions in the claim: it is disposed in a network interface and it processes incoming packets in order to classify the first packet. Further, in the interference request, "traffic classifier" was mapped to the application's "receive hardware sequencer" that processes incoming frames to generate status and context tables, move the frames into a buffer, and queue the frames. *See, e.g.*, '880 Patent File Wrapper June 19, 2003 Request to Provoke Interference 61–

> 41. An apparatus for transferring a packet to a host computer system, comprising:
>   a ***traffic classifier***, disposed in a network interface for the host computer system, configured to classify a first packet received from a network by a communication flow that includes said first packet;
>   a packet memory, disposed in the network interface, configured to store said first packet;
>   a packet batching module, disposed in the network interface, configured to determine whether another packet in said packet memory belongs to said communication flow;
>   a flow re-assembler, disposed in the network interface, configured to re-assemble a data portion of said first packet with a data portion of a second packet in said communication flow; and
>   a processor, disposed in the network interface, that maintains a TCP connection for the communication flow, the TCP connection stored as a control block on the network interface.

62, Dkt. No. 181-23 at 63–64; *see also* '880 Patent 59:27–33. This comports with "traffic classification" in the relevant art. Min Rebuttal ¶ 177–78, Dkt. No. 181-13 at 90–91. In this context, "traffic classifier" connotes structure. Ultimately, Defendants have failed to overcome the presumption against application of § 112, ¶ 6.

Accordingly, the Court determines that § 112, ¶ 6 does not apply and that Defendants have failed to prove that "traffic classifier" renders any claim indefinite.

IV.   CONCLUSION

The Court adopts the constructions above for the disputed and agreed terms of the Asserted Patents. The Court further finds that Claim 22 of the '104 Patent is invalid as indefinite. Furthermore, the parties should ensure that all testimony that relates to the terms addressed in this Order

is constrained by the Court's reasoning. However, in the presence of the jury the parties should not expressly or implicitly refer to each other's claim construction positions and should not expressly refer to any portion of this Order that is not an actual construction adopted by the Court. The references to the claim construction process should be limited to informing the jury of the constructions adopted by the Court.

      SIGNED this 21st day of September, 2017.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE